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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/047,717	03/25/98	TANIGUCHI M	U-011678-8

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IM52/0821

EXAMINER	
SHOSHO, C	
ART UNIT	PAPER NUMBER
1714	20

DATE MAILED: 08/21/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09/047,717	Taniguchi et al.
Examiner	**Art Unit**
Calil Shosho	1714

-- Th MAILING DATE of this communication appears on the cover sheet with th correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on Mar 26, 2001

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 23-70 is/are pending in the applica

4a) Of the above, claim(s) _____ is/are withdrawn from considera

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 23-70 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirem

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☒ All b) ☐ Some* c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

19) ☐ Notice of Informal Patent Application (PTO-152)

20) ☐ Other:

DETAILED ACTION

Continued Prosecution Application

1. The request filed on 2/12/01 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/047,717 is acceptable and a CPA has been established. An action on the CPA follows.

2. All outstanding rejections are overcome in light of applicant's pre-amendment and arguments filed 3/26/01. The following action is non-final in light of the use of three new references, namely, Takizawa et al. (U.S. 6,174,354), Tomita et al. (U.S. 5,017,224), and Yatake (U.S. 5,746,818) as well as the 35 USC 112 rejection as set forth in paragraph 4a below.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 23-70 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

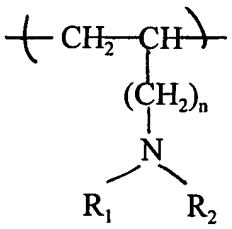
(a) Claim 23 discloses an "ink composition consisting essentially of alkali-soluble colorant, water-soluble organic solvent, water, a cationic water-soluble resin and, optionally, one or more of a base, a nonionic water-soluble resin, ...". It is noted that the transitional language "consisting essentially of" limits the scope of the claim to the claimed ingredients and those which do not materially affect the basic and novel characteristic of the ink.

Thus, the scope of claim 23 is confusing given that the claim recites "consisting essentially of" language which excludes ingredients which materially affect the basic and novel characteristic of the ink but also discloses that the ink contains base, nonionic water-soluble resin, etc. which would, in fact, materially affect the basic and novel characteristic of the ink.

It is suggested that claim 23 is re-written as two claims wherein one claim recites an "ink composition consisting essentially of alkali-soluble colorant, water-soluble organic solvent, water, and a cationic water-soluble resin..." and the other claim recites an "ink composition consisting essentially of alkali-soluble colorant, water-soluble organic solvent, water, a cationic water-soluble resin and one or more of a base, a nonionic water-soluble resin, ...".

It is noted that similar problems arise in claim 50 which also recites "consisting essentially of" transitional language as well as additives which would in fact materially affect the basic and novel characteristic of the ink.

(b) Claims 23, 50, 52, and 69 recite "cationic water-soluble resin comprising a repeating unit represented by the following formula (I):



The scope of the claims is confusing because cationic resins typically possess a positive charge and the cationic resin as disclosed in the above claims does not appear to be positively charged. Clarification is requested.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. Claims 23-28, 30-33, 41, and 43-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Tomita et al. (U.S. 5,019,164).

Tomita et al. '164 disclose an ink composition which contains water, alkali-soluble colorant including dyes, 10-30% water-soluble organic solvent such as ethylene glycol, butyl

carbitol, and butyl cellosolve, nonionic water-soluble resin such as polyvinyl pyrrolidone, base such as sodium hydroxide, stabilizer including urea such as thiourea, and 0.5-5% polyvinylamine which has molecular weight greater than 300 and which is identical to the presently claimed cationic water-soluble resin when R_1 is H or CH_3 and R_2 is CH_3 and n is 0 (col.2, lines 54-64, col.3, lines 26-38, col.4, lines 45-50 and 58-59, col.5, lines 3-8, 15-18, and 26-34, and col.9, lines 65-68).

It is noted that the present claims have been amended to recite "consisting essentially of" language and it is further noted that Tomita et al. '164 disclose the use of a mixture of polyamines which include polyvinylamine, polyallylamine, and polyethyleneimine. Such a mixture of two polyamines would appear to fall outside the scope of the present claims. However, the present claims also require a base which clearly encompasses compounds such as polyamines. Thus, although Tomita et al. '164 disclose the use of two polyamine, given that polyamine also functions as a base, it is clear that the disclosure of Tomita et al. '164 clearly falls with the scope of the present claims. That is, the two polyamines of Tomita et al. can function as the presently claimed cationic water-soluble resin and base, respectively.

In light of the above, it is clear that Tomita et al. '164 anticipates the present claims.

Note: If applicants were willing to insert the limitation of claim 27 into claim 23 in order to define the base as a hydroxide of an alkali metal or an alkaline earth metal, the examiner would be willing to reconsider the above rejection.

7. Claims 23-24, 26-27, 30-33, 41, and 43-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Tomita et al. (U.S. 5,017,224).

Tomita et al. '224 disclose an ink composition comprising water, 0.5-5% polyvinylamine which has molecular weight greater than 300 and which is identical to the presently claimed cationic water-soluble resin when R_1 is H and R_2 is CH_3 and n is 0, 5-20% urea such as ethyleneurea or thiourea, alkali-soluble dye, 10-30% solvent including ethylene glycol, butyl carbitol, and butyl cellosolve, nonionic water-soluble resin such as polyvinyl pyrrolidone, base such as sodium hydroxide, surfactant, glycerine, triethanolamine, and diethylene glycol (col.2, lines 37-48, col.2, line 62-col.3, line 2, col.3, lines 6-25, 37-42, and 61-62, col.4, lines 5-17 and 61-64, and examples).

In light of the above, it is clear that Tomita et al. '224 anticipates the present claims.

8. Claims 23-27, 29-32, 34, 40-42, 45-46, 48, 52-56, 58-60, 62, and 68 are rejected under 35 U.S.C. 102(e) as being anticipated by Takizawa et al. (U.S. 6,174,354).

Takizawa et al. disclose an ink jet ink comprising water, 0.1-30% copolymer which has molecular weight of 1,000-1,000,000 and is obtained from cationic monomer including methylallylamine, pigment or acidic and direct dye, 3-50% solvent including ketone, glycerine, ethylene glycol isopropanol, diethylene glycol, and triethanolamine, base such as potassium hydroxide, and surfactant. It is further disclosed that hydrochloric acid is added to the copolymer which would inherently produce resin which is an acid addition salt. There is also disclosed an

ink set comprising yellow, black, magenta, and cyan inks wherein one or several of the inks comprise copolymer as described above (col.4, line 66-col.5, line 5, col.5, lines 15-23 and 42-50, col.7, lines 38-67, col.8, lines 1-9, col.15, lines 11-19, example 5, and example 11).

In light of the above, it is clear that Takizawa et al. anticipates the present claims.

Claim Rejections - 35 USC § 103

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita et al. (U.S. 5,017,224) in view of Taniguchi et al. (U.S. 5,667,572).

The disclosure with respect to Tomita et al. '224 in paragraph 7 above is incorporated here by reference.

The difference between Tomita et al. '224 and the present claimed invention is the requirement in the claims of saccharide.

Taniguchi et al., which is drawn to ink composition, disclose the use of saccharide such as mannitol in order to prevent clogging and produce print with good waterfastness (col.5, lines 46-49 and col.6, lines 2-7 and 15-31).

In light of the motivation for using saccharide disclosed by Taniguchi et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use saccharide in the ink of Tomita et al. '224 in order to prevent pen clogging and produce print with good waterfastness, and thereby arrive at the claimed invention.

11. Claims 34-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stoffel et al. (U.S. 5,555,008) in view of Tomita et al. (U.S. 5,017,224).

Stoffel et al. disclose an ink set having reduced bleed which comprises at least one anionic ink and at least one cationic ink. The anionic ink comprises an aqueous carrier medium of water and 5-70% water-soluble organic solvent which has a lower vapor pressure than water such as polyhydric alcohols, a colorant such as pigments or acid and/or direct dyes, and an anionic polymer which can be an acid addition salt. The cationic ink has an aqueous carrier medium and colorant identical to the anionic ink as well as a cationic polymer. If there are more than two inks such as black, yellow, magenta, and cyan, the most important ink is made of one charge characteristic (i.e. anionic or cationic), while the other inks are of the other charge characteristic. Therefore, the ink set may comprise a black ink which is anionic, and cyan, yellow, and magenta inks which are cationic or vice versa, which is identical to present claims 34-36. A method is disclosed where he ink is printed with an ink jet printer onto a recording material to produce a printed image (col.3, lines 1-15 and 28-36, col.4, lines 45-61, col.5, lines 5

and 54-64, col.6, lines 50-67, col.7, lines 25-37, col.8, line 65-col.9, line 8 and col.15, lines 44-48, col.16, lines 25-40, col.17, line 65-col.18, line 35, and col.20, line 54).

The difference between Stoffel et al. and the present claimed invention is the requirement in the claims of specific type of cationic polymer.

Tomita et al. '224, which is drawn to ink composition, disclose a polyvinylamine identical to the presently claimed cationic water soluble resin when R_1 is H and R_2 is CH_3 and n is 0 and which has a molecular weight of greater than 300 and is used in order to impart improved water resistance to the ink compositions (col.1, line 67-col.2, line 2 and col.3, lines 37-42).

In light of the motivation for using specific cationic polymers disclosed by Tomita et al. '224 as described above, it therefore would have been obvious to one of ordinary skill in the art to use such cationic polymers as the cationic polymer in the ink set of Stoffel et al. in order to produce an ink set that has improved water resistance, and thereby arrive at the claimed invention.

12. Claims 28, 35-38, 57, and 63-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (U.S. 6,174,354).

The disclosure with respect to Takizawa et al. in paragraph 8 above is incorporated here by reference.

The difference between Takizawa et al. and the present claimed invention is the requirement in the claims of (a) cationic resin comprising repeat unit of presently claimed formula I wherein R_1 and R_2 are both methyl and (b) ink set wherein yellow, magenta, and cyan inks each comprise cationic water-soluble resin and black ink which comprises anionic material and vice versa.

With respect to difference (a), Takizawa et al. broadly disclose that the copolymer is obtained from cationic monomer including allylamine which clearly encompasses use of specific types of allylamines including those presently claimed, i.e. dimethylallylamine. It would have been within the skill level of one of ordinary skill in the art to recognize that the number and type of substituents present in the allylamine would effect the properties of the copolymer such as solubility.

Therefore, it would have been obvious to, as well as within the skill level of, one of ordinary skill in the art to choose allylamine, including that presently claimed, in order to produce copolymer with desired properties, and thereby arrive at the claimed invention.

With respect to difference (b), it is noted that Takizawa et al. disclose ink set wherein black, cyan, and yellow inks comprise pigment and anionic material such as anionic dispersant and magenta ink comprises copolymer obtained from cationic monomer such as methylallylamine or an ink set wherein the yellow ink comprises pigment and anionic dispersant and the black, cyan, and magenta inks comprise copolymer obtained from cationic monomer such as methylallylamine. There is no disclosure of specific ink sets as presently claimed.

However, given that the copolymer obtained from cationic monomer of Takizawa et al. prevents bleed between inks of the ink set and further given that bleed between black ink and other colored inks is most pronounced and visible, it therefore would have been obvious to one of ordinary skill in the art to utilize the copolymer in 1, 2, or 3 of the inks of the ink set including either black ink or the cyan, yellow, and magenta inks, in order to prevent color bleed, and thereby arrive at the claimed invention.

13. Claims 33 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (U.S. 6,174,354) in view of Taniguchi et al. (U.S. 5,667,572).

The disclosure with respect to Takizawa et al. in paragraph 8 above is incorporated here by reference.

The difference between Takizawa et al. and the present claimed invention is the requirement in the claims of nonionic water-soluble resin.

Taniguchi et al., which is drawn to ink composition, disclose the use of nonionic water-soluble resin such as polyvinyl pyrrolidone in order to prevent clogging and produce print with good waterfastness (col.5, lines 46-49 and col.6, lines 2-7 and 15-31).

In light of the motivation for using nonionic water-soluble resin disclosed by Taniguchi et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such resin in the ink of Takizawa et al. in order to prevent pen clogging and produce print with good waterfastness, and thereby arrive at the claimed invention.

14. Claims 39 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (U.S. 6,174,354) in view of Yatake (U.S. 5,746,818).

The disclosure with respect to Takizawa et al. in paragraph 8 above is incorporated here by reference.

The difference between Takizawa et al. and the present claimed invention is the requirement in the claims of pigment having anionic functional group.

Yatake et al., which is drawn to ink jet inks, disclose the use of pigment possessing carboxyl group on its surface in order to produce a pigment which is dispersed in the ink without the need for dispersant (col.3, lines 22-28).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use such a pigment in the inks of the ink set of Takizawa et al. in order to produce inks which do not require any dispersant, and thereby arrive at the claimed invention.

15. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (U.S. 6,174,354) in view of Tomita et al. (U.S. 5,017,224).

The disclosure with respect to Takizawa et al. in paragraph 8 above is incorporated here by reference.

The difference between Takizawa et al. and the present claimed invention is the requirement in the claims of urea.

Tomita et al. '224, which is drawn to ink composition, disclose the use of urea such as ethyleneurea and thiourea so that resistance to drying up is improved (col.2, lines 53-55).

In light of the motivation for using urea disclosed by Tomita et al. '224 as described above, it therefore would have been obvious to one of ordinary skill in the art to use urea in the ink jet ink of Takizawa et al. in order to produce an ink which will not dry out and thus clog the printer nozzles, and thereby arrive at the claimed invention.

16. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (U.S. 6,174,354) in view of Taniguchi et al. (U.S. 5,667,572).

The disclosure with respect to Takizawa et al. in paragraph 8 above is incorporated here by reference.

The difference between Takizawa et al. and the present claimed invention is the requirement in the claims of saccharide.

Taniguchi et al., which is drawn to ink composition, disclose the use of saccharide such as mannitol in order to prevent clogging and produce print with good waterfastness (col.5, lines 46-49 and col.6, lines 2-7 and 15-31).

In light of the motivation for using saccharide disclosed by Taniguchi et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use saccharide in the ink of Takizawa et al. in order to prevent pen clogging and produce print with good waterfastness, and thereby arrive at the claimed invention.

17. Claims 50-51 and 69-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (U.S. 6,174,354).

Takizawa et al. disclose an ink set comprising yellow, magenta, cyan, and black ink wherein the ink comprises water, 0.1-30% copolymer which has molecular weight of 1,000-1,000,000 and is obtained from cationic monomer including methylallylamine, acidic or direct dye, 3-50% solvent including ketone, glycerine, ethylene glycol isopropanol, diethylene glycol, and triethanolamine, base such as potassium hydroxide, and surfactant (col.4, line 66-col.5, line 5, col.5, lines 15-23 and 42-50, col.7, lines 38-67, and col.8, lines 1-9).

The difference between Takizawa et al. and the present claimed invention is the requirement in the claims of specific type of ink set.

It is noted that Takizawa et al. disclose ink set wherein black, cyan, and yellow inks comprise pigment and anionic material such as anionic dispersant and magenta ink comprises copolymer obtained from cationic monomer such as methylallylamine or an ink set wherein the yellow ink comprises pigment and anionic dispersant and the black, cyan, and magenta inks comprise copolymer obtained from cationic monomer such as methylallylamine. There is no explicit disclosure of specific ink sets as presently claimed wherein all the inks comprise cationic water-soluble resin as well as dye.

However, Takizawa et al. do disclose that the inks comprise acid dye and direct dye which clearly encompass those presently claimed. Further, given that the copolymer obtained from cationic monomer of Takizawa et al. prevents bleed between inks of the ink set, it therefore

would have been obvious to one of ordinary skill in the art to utilize the copolymer in all of the inks of the ink set in order to prevent color bleed between all of the inks, and thereby arrive at the claimed invention.

Response to arguments

18. Applicants arguments filed 3/26/01 have been fully considered but they are not persuasive.

Specifically, applicant argues that in light of the amending of claim 23 to recite "consisting essentially of" claim language, Tomita et al. '164 is no longer a relevant reference against this claim, and all claims which depend on it, since Tomita et al. '164 disclose the use of mixture of cationic water-soluble resins. i.e two polyamines, which falls outside the scope of the present claims.

However, the present claims also require a base which clearly encompasses compounds such as polyamines. Thus, although Tomita et al. '164 disclose the use of two polyamines, given that polyamine also functions as a base, it is clear that the disclosure of Tomita et al. '164 clearly falls with the scope of the present claims. That is, the two polyamines of Tomita et al. can function as the presently claimed cationic water-soluble resin and base, respectively.

Note: If applicants were willing to insert the limitation of claim 27 into claim 23 in order to define the base as a hydroxide of an alkali metal or an alkaline earth metal, the examiner would be willing to reconsider the above rejection.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie Shosho whose telephone number is (703) 305-0208. The examiner can normally be reached on Mondays-Thursdays from 7:00 am to 4:30 pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (703) 306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

C S.

Callie Shosho

8/17/01

Vasu Jagannathan

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